

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended):—A Method method for connecting a first user-terminal user terminal (UT1) of a first virtual private network to a second user-terminal user terminal (UT2) of a second virtual private network, over a network such as the internet, and said network containing having a plurality of user terminals user terminals (UT1, UT2) and a plurality of network access servers (NAS1, NAS2, NAS3), each of said plurality of user terminals user terminals (UT1, UT2) being coupled to a respective network access server of said plurality of network access servers (NAS1, NAS2, NAS3), comprising: CHARACTERISED IN THAT said method comprises the steps of:
- a. at connection of said second user-terminal (UT2) to its respective network access server (NAS1) sending connection information by said respective network access server (NAS1) to a subscriber data server (SDS) included in said network and coupled to each network access server (NAS1, NAS2, NAS3);
- a. making a connection of said second user terminal to a first network access server, wherein said first network access server is said respective network access server of said second user terminal;
- b. in response to said connection of said second user terminal, sending connection information from said first network access server to a subscriber data server included in said network and coupled to each of said plurality of network access servers;
- b-c. updating a database of said subscriber data server (SDS) with based on said connection information;
- c. handling by said subscriber data server (SDS) of an incoming call request from said first user-terminal (UT1) in order to establish a connection between said first user-terminal

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

(UT1) and said second user terminal (UT2) said first user terminal (UT1) being connected to a first virtual private network, said second user terminal (UT2) being connected to a second virtual private network;

d. searching in said database of said subscriber data server (SDS) for connection information of said second user terminal (UT2);

e. said subscriber data server (SDS) determining said respective network access server (NAS1) connected to said second user terminal (UT2), using said connection information;

B
d. upon an incoming request of communication from said first user terminal of said first virtual private network to said second user terminal of said second virtual private network, said subscriber data server locating said respective network access server connected to said second user terminal and notifying said second user-terminal (UT2) about based on said request of communication requesting of said communication by from said first user-terminal (UT1);

g. said second user terminal (UT2) initiating and controlling a switch over of said connection of said second user-terminal (UT2) from said second virtual private network to said first virtual private network; and

h. said respective network access server (NAS1) of said second user terminal (UT2) switching said connection of said second user terminal (UT2) from said second virtual private network to said first virtual private network; and

e. switching said second user terminal from said second virtual private network to said first virtual private network in response to said locating

At switch over of said connection of said second user terminal (UT2) from said second virtual private network to said first virtual private network sending connection information by said respective network access server (NAS1) to said subscriber data server (SDS).

2. (currently amended): -The Method method according to claim 1, **CHARACTERISED IN THAT** wherein said step of notifying said second user terminal (UT2) about said requesting

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

of said communication by said first user-terminal (UT1) is performed according to the following steps of: in d comprises:

said incoming request of communication is handling by said subscriber data server of an incoming call request from said first user-terminal and is handled by said subscriber data server;

said locating includes searching in said database of said subscriber data server for connection information of said second user-terminal;

said subscriber data server uses said connection information to determine determining said virtual private network and said respective network access server connected to said second user-terminal, using said connection information;

a:said subscriber data server indicates receiving said incoming call request to of said subscriber data server (SDS) at said respective first respective network access server (NAS1) connected to said second user-terminal (UT2); and

said respective respective first network access server (NAS1) connected to said second user-terminal (UT2) sending notifiessaid incoming call request of said first user-terminal (UT1) to said second user-terminal of said incoming call request (UT2).

3. (currently amended): -The Method method according to claim 1, wherein CHARACTERISED IN THAT said step of notifying said second user-terminal (UT2) about based on said requesting of said communication by from said first user-terminal, (UT1) is performed over a transparent connection between said subscriber data server (SDS) and said second user-terminal (UT2)-via said respective first network access server (NAS1) connected to said second user-terminal (UT2).

4. (currently amended): -The Method method according to claim 1, CHARACTERISED IN THAT said method further comprises comprising, before said step ed, the steps of:

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

receiving said incoming call request of said first user-terminal (UT2) at said respective network access server (NAS2) connected to said first user-terminal (UT1); and said respective network access server (NAS2) connected to said first user-terminal (UT1) sending said incoming call request of said first user-terminal (UT1) to said subscriber data server (SDS).

5. (currently amended): ~~The Method method according to claim 1, CHARACTERISED IN THAT said method further comprises comprising before said step ed, the step of sending said incoming call request of said first user-terminal (UT1) over a transparent connection between said first user-terminal (UT1) and said subscriber data server (SDS) via said network access server (NAS2) connected to said first user-terminal.~~

6. (currently amended): ~~Network Access Server (NAS1)~~ A network access server for enabling a connection ~~over a network between two~~ a first user terminals (UT1) ~~of two different virtual private networks and a second user terminal (UT2) over a network such as the internet, wherein said network containing a plurality of user terminals (UT1, UT2) and a plurality of network access servers (NAS1, NAS2, NAS3) each of said plurality of user terminals is (UT1, UT2) being coupled to a respective network access server of said plurality of network access servers (NAS1, NAS2, NAS3), CHARACTERISED IN THAT said the network access server (NAS1) comprises the following means to enable said connection using the method according to claim 1 comprising:~~

~~switch notification reception means for receiving (SNRM), adapted to receive a request, from one of said second user terminal user terminals, (UT2) to initiate a switch-over of a connection of said second user terminal (UT2) from one of a said second virtual private network networks to the other a first virtual private network;~~

~~switching means (SM), coupled with an input to an output of said switch notification reception means, for (SNRM) and adapted to perform performing said switch-over of said connection~~

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

~~of said second user terminal (UT2) from said second virtual private network to said first virtual private network; and~~

~~user terminal~~user terminal connect notification sending means (HCNSM), coupled with ~~an input to an output of~~ said switching means, ~~for sending (SM) and adapted to send~~ connection information to ~~said a~~ subscriber data server, (SDS) ~~at upon the connecting of one of~~ said second user terminaluser terminals (UT2) to said respective network access server (NAS1) and ~~at upon said switch-over of~~ said connection of ~~one of~~ said second user terminals (UT2) ~~from the one of the said second virtual private network networks to said first virtual private network~~the other.

7. (currently amended):— ~~Network~~ The network access server (NAS1) according to ~~claim claim~~ 6, **CHARACTERISED IN THAT** said network access server (NAS1) further ~~comprises~~comprising:

~~connection establishment request reception means (CERRM1), adapted to receive for receiving from said subscriber data server a connection request from said subscriber data server (SDS) to establish said connection between said first user terminal (UT1) connected to said first virtual private network and said second two user terminals (UT2) connected to said second virtual private network via said respective network access server (NAS1); and connection establishment request sending means (CERSM2), coupled with an input to an output of said connection establishment requesting reception means, (CERRM1) and adapted to notify for notifying one of said second user terminaluser terminals (UT2) about an incoming call from said first user terminal~~another of said user terminals (UT1).

8. (Currently Amended) ~~Network Access Server (NAS2), for enabling a connection between a first user terminal (UT1) and a second user terminal (UT2) over a network such as the internet, said network containing a plurality of user terminals (UT1, UT2) and a plurality of network access servers (NAS1, NAS2, NAS3) each of said plurality of user terminals (UT1,~~

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

~~UT2) being coupled to a respective network access server of said plurality of network access servers (NAS1,NAS2, NAS3), CHARACTERISED IN THAT A network access server, defined as a second network access server, intended for use in a network operating according to a method for connecting a first user terminal of a first virtual private network to a second user terminal of a second virtual private network, said network being a network such as the internet, said network having a plurality of user terminals and a plurality of network access servers including said network access server, each of said plurality of user terminals being coupled to a respective network access server of said plurality of network access servers, the network operating method comprising:~~

- B1*
- Claims 2,4,7X*
- a. making a connection of said second user terminal to a first network access server, wherein said first network access server is said respective network access server of said second user terminal;
 - b. in response to said connection of said second user terminal, sending connection information from said first network access server to a subscriber data server included in said network and coupled to each of said plurality of network access servers;
 - c. updating a database of said subscriber data server based on said connection information;
 - d. upon an incoming request of communication from said first user terminal to said second user terminal, said subscriber data server locating said respective network access server connected to said second user terminal and notifying said second user-terminal based on said request of communication from said first user-terminal; and
 - e. switching said second user terminal from said second virtual private network to said first virtual private network in response to said locating.

wherein:

said incoming request of communication is an incoming call request from said first user-terminal and is handled by said subscriber data server;
said locating includes searching in said database of said subscriber data server for connection information of said second user-terminal;

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

said subscriber data server uses said connection information to determine said virtual private network and said network access server connected to said second user-terminal;

said subscriber data server indicates said incoming call request to said respective network access server connected to said second user-terminal;

said respective network access server connected to said second user-terminal notifies said second user-terminal of said incoming call request;

wherein said second network access server (NAS2) comprises the following means to enable said connection using the method according to claim 2:

connection establishment request reception means (CERRM4), adapted to receive a connection request from said first user-terminal (UT1) to establish said connection between said first user-terminal (UT1) connected to said first virtual private network and said second user-terminal (UT2) connected to said second virtual private network; and

connection establishment request sending means (CERSM4), coupled with an input to an output of said connection establishment requesting reception means (CERRM4) and adapted to notify said subscriber data server (SDS) about an incoming call from said first user-terminal (UT1).

9. (currently amended):— Each of said plurality of A Network ~~network~~ access servers according to claim 6, **CHARACTERISED IN THAT** ~~said Network access server further comprises comprising~~:

connection establishment request reception means (CERRM2) for receiving from one of said user terminals a connection request ~~from~~ said first user terminal (UT1) to establish said connection between ~~said first user terminal~~ (UT1) connected to ~~said first virtual private network and said second user terminal~~ two user terminals (UT2) connected to ~~said second virtual private network~~; and

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

connection establishment request sending means (~~CERSM3~~), coupled with ~~an input to an output of~~ said connection establishment requesting reception means, (~~CERRM2~~) and adapted to notify ~~for notifying~~ said subscriber data server— (~~SDS~~) about an incoming call from ~~said first user terminal~~the one of said user terminals (~~UT1~~).

10. (currently amended): -Subscriber Data Server (~~SDS~~), for enabling a connection of a first user terminal (~~UT1~~) to a second user terminal (~~UT2~~) over a network such as the internet, said network containing a plurality of user terminals (~~UT1, UT2~~) and a plurality of network access servers (~~NAS1, NAS2, NAS3~~) each of said plurality of user terminals (~~UT1, UT2~~) being coupled to a respective network access server of said plurality of network access servers (~~NAS1, NAS2, NAS3~~) and said subscriber data server (~~SDS~~) being coupled to each network access server of said plurality of network access servers (~~NAS1, NAS2, NAS3~~), said Said A subscriber data server, intended for use in a network having user terminals communicating with respective network access servers, wherein the network access servers communicate with the subscriber data server, and wherein some of the user terminals are in different virtual private networks, the subscriber data server comprising: ~~comprises~~ the following means to enable said connection using the method according to claim 1:

a connection information database;

~~user terminal~~user terminal connect notification reception means (~~UTCNRM~~), adapted to receive ~~said~~ connection information upon the connection of one of the user terminals to one of the network access servers at connection of said second user terminal (~~UT2~~) to said respective network access server (~~NAS1~~) and at switch over of said connection of said second user terminal (~~UT2~~) from said second virtual private network to said first virtual private network;

~~user terminal~~user terminal connect notification updating means, (~~UTCNUM~~) coupled with ~~an input to an output of~~ ~~the user terminal~~user terminal connect notification reception means, ~~for updating~~ (~~UTCNRM~~) and adapted to update ~~the~~ connection information

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

database of said subscriber data server (SDS) with based on said the connection information;

connection establishment request reception means (CERRM), adapted to receive for receiving a connection request, from a first one of said first user terminal the user terminals a first one of the virtual private networks, (UT1) to establish a connection with a second one of the user terminals in a second one of the virtual private networks between said first user-terminal (UT1) connected to a first virtual private network and said second user terminal (UT2) connected to said second virtual private network;

connection information searching means (RISM), coupled with an input to an output of said the connection establishment request reception means, for (CERRM) and adapted to search searching in said the connection information database of said subscriber data server (SDS) for the connection information of said the second user terminal user terminal (UT2); and

connection establishment request sending means (CERSMI), coupled with an input to an output of said the connection information searching means, for notifying the (RISM) and adapted to notify said second user terminal user terminal (UT2) about an incoming call from said first user terminal user terminal, according to the connection information of the second user terminal (UT1).

- B 1
11. (currently amended): Second user terminal (UT2), for inclusion in a network such as the internet containing a plurality of such user terminals and a plurality of network access servers (NAS1, NAS2, NAS3) each of said plurality of user terminals (UT1, UT2) being coupled to a respective network access server of said plurality of network access servers (NAS1, NAS2, NAS3), CHARACTERISED IN THAT said A user terminal intended for use in a network having user terminals communicating with respective network access servers, wherein the network access servers communicate with a subscriber data server, and wherein some of the user terminals are in different virtual private networks, the user terminal comprising:

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

~~Said second user terminal (UT2) comprises the following means for enabling a connection between a said first user terminal (UT1) and itself over said network using a method according to claim 1:~~

connection establishment request reception means—~~(CERRM3)~~, adapted to receive for receiving from the respective network access server of the user terminal, a connection request of a different from said first user terminal user terminal from a different virtual private network (UT1) via its respective network access server (NAS2) to establish a connection to ~~the said second user terminal~~ user terminal (UT2);

incoming call handling means—~~(ICHM)~~, coupled with an input to an output of said ~~the~~ connection establishment request reception means, for handling ~~(CERRM3)~~ and adapted to handle ~~said the~~ connection request from ~~the different said first user terminal~~ user terminal (UT1); and

switch requesting means—~~(SRM)~~, coupled with an input to an output of said ~~the~~ incoming call handling means, for requesting ~~(ICHM)~~ and adapted to request said respective ~~first the~~ respective network access server (NAS1) to switch ~~said the~~ connection of ~~said the~~ second user terminal user terminal (UT2) from a ~~current second~~ virtual private network to ~~the~~ different a first virtual private network of the different user terminal.

- B 1
12. (currently amended):—Software—A software module for running on a processing system for inclusion in a subscriber data server, intended for use in a network having user terminals communicating with respective network access servers, wherein the network access servers communicate with the subscriber data server, and wherein some of the user terminals are in different virtual private networks, the software module comprising ~~Subscriber Data Server (SDS)~~ and for enabling a connection of a first user terminal (UT1) of a first virtual private network to a second user terminal (UT2) of a second virtual private network over a network such as the internet, said network containing a plurality of user terminals (UT1, UT2) and a plurality of network access servers (NAS1, NAS2, NAS3), each of said plurality of user terminals (UT1, UT2) being coupled to a respective network access server of said plurality of

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

~~network access servers, (NAS1, NAS2, NAS3) and said subscriber data server (SDS) being coupled to each network access server of said plurality of network access servers (NAS1, NAS2, NAS3), said software module comprises the following software sub-modules to enable said connection using the method according to claim 1:~~

- a user terminal connect notification reception sub-module, adapted to receive said connection information, at upon connection of any of the user terminals to any one of the network access servers said second user terminal (UT2) to said respective first network access server (NAS1) and at switch over of said connection of said second user terminal (UT2) from said second virtual private network to said first virtual private network;
- a user terminal connect notification updating sub-module, co-operating with the said user terminal connect notification reception sub-module, and adapted to update a connection information database of said subscriber data server (SDS) with said based on the connection information;
- a connection establishment request reception sub-module, adapted to receive a connection request from a first one of the said first user terminal user terminals of one of the virtual private networks, (UT1) to establish a connection with a between second one of the user terminals of a different one of the virtual private networks said first user terminal (UT1) connected to a first virtual private network and said second user terminal (UT2) connected to said second virtual private network;
- a connection information searching sub-module, co-operating with the said connection establishment request reception sub-module, and adapted to search the connection information in said database for of said subscriber data server (SDS) for connection information of said the second user terminal user terminal (UT2); and
- a connection establishment request sending sub-module, co-operating with said the connection information searching sub-module, and adapted to notify said the second user terminal user terminal (UT2) about an the incoming call from said the first user terminal user terminal (UT1).

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

13. (currently amended):—Software module ~~A software module intended for use in for running on a processing system for inclusion in a given second user terminal of a network having user terminals communicating with respective network access servers, wherein the network access servers communicate with a subscriber data server, and wherein some of the user terminals are in different virtual private networks, the software module comprising(UT2) and for inclusion in a network such as the internet containing a plurality of such user terminals and a plurality of network access servers, (NAS1, NAS2, NAS3) each of said plurality of user terminals (UT1, UT2) being coupled to a respective network access server of said plurality of network access servers, (NAS1, NAS2, NAS3), CHARACTERISED IN THAT said software module comprises the following software sub modules for enabling a connection between a first user terminal (UT1) and itself over said network using a method according to claim 1:~~

B1
a connection establishment request reception sub-module, adapted to receive ~~from the respective network access server~~ a connection request, ~~of a different from said first user terminal~~user terminal, (UT1) via its ~~respective~~ network access server (NAS2) to establish a connection to the given ~~said~~ second user terminal~~user terminal~~ (UT2);

an incoming call handling sub-module, co-operating with ~~said~~ the connection establishment request reception sub-module, and adapted to handle ~~said~~ the connection request from ~~said first user terminal~~ (UT1); and

a switch requesting sub-module, co-operating with ~~said~~ the incoming call handling sub-module, and adapted to request ~~said respective~~ first ~~the~~ respective network access server (NAS1) ~~of the given user terminal~~ to switch ~~said~~ the connection of ~~said second~~ the given user terminal~~user terminal~~ (UT2) from a current ~~second~~ virtual private network to the ~~different~~ virtual private network of ~~the different user terminals~~ first virtual private network.

14. (New): The method according to claim 1, wherein the step e further comprises:

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/666,388
ATTORNEY DOCKET NO. Q60803

- B1*
- end*
- a. said second user terminal initiating and controlling a switch-over of said connection of said second user terminal from said second virtual private network to said first virtual private network;
 - b. said first network access server switching said connection of said second user terminal from said second virtual private network to said first virtual private network; and
 - c. upon switch-over of said connection of said second user terminal from said second virtual private network to said first virtual private network, sending connection information from said first network access server to said subscriber data server .